



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,569	09/30/2003	William Daniel Bevers	Bevers 4-16-3-6-3/075903-	9976
29391	7590	04/04/2006	EXAMINER KRISHNAMURTHY, RAMESH	
BEUSSE BROWNLEE WOLTER MORA & MAIRE, P. A. 390 NORTH ORANGE AVENUE SUITE 2500 ORLANDO, FL 32801			ART UNIT 3753	
PAPER NUMBER				

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/675,569

Applicant(s)

BEVERS ET AL.

Examiner

Ramesh Krishnamurthy

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 3753

This office action is responsive to communications filed 03/20/06.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission including the amendment filed on 03/20/06 has been entered.

**Claims 1 – 19 are pending.**

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1 – 6 and 8 – 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown (US 6,119,710) in view of Hinkle (US 5,684,245).

Art Unit: 3753

Brown discloses (Figs. 2 – 7) a system and method to measure a gas flow rate for a gas provided by a mass flow controller to a process chamber (215) via process line (404), comprising:

a. said mass flow controller (422-424, 430);

b. a vent line (such as (302) in Fig. 3) and

i. a bypass loop (Fig. 4) having an inlet junction near the first control valve (417) and a return junction with a second control valve (419) and comprising:

a. a flow detector (403, 470, 420) that is adapted to provide a measurement of said gas flow rate as said gas flows through both said flow detector and said bypass loop;

b. a main vent line shut-off valve (such as (211) in Fig. 2)

whereby said gas flow directed through said bypass loop provides a measurement of said mass flow controller's gas flow rate which provides information for quantiation or for calibration of said mass flow controller.

The patent to Brown discloses the claimed invention with the exception of explicitly disclosing the bypass loop to be connected to either the process line or the vent line between the mass flow controller and the process chamber. Brown discloses the bypass loop to be located upstream of the mass flow controller (422-424, 430).

Hinkle discloses a flow arrangement for calibrating a mass flow controller wherein the bypass loop (see Fig. 4C) is disposed downstream of the mass flow controller (24) for the purpose of calibrating the mass flow coming out of the mass flow controller.

Art Unit: 3753

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided in Brown the bypass loop downstream of the mass flow controller for the purpose of calibrating the mass flow coming out of the mass flow controller, as evident in Hinkle.

It is noted that the provision of a bypass mass flow controller for a flow detector in the bypass loop is a design expedient over those features disclosed in the combination of Brown and Hinkle in that a mass flow controller is a known flow meter that is an art recognized equivalent to other accurate flow detectors. The term "bypass" in the limitation "bypass mass flow controller" is being regarded here as a mere identifier.

It is noted that the combination of Brown and Hinkle disclosed above necessarily performs the method recited in claims 18 and 19.

4. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown and Hinkle as applied to claims 1 – 6, 8 – 19 above, and further in view of Nishikawa et al. (US 6,273,954).

The combination of Brown and Hinkle as set forth above discloses the claimed invention with the exception of explicitly disclosing a backpressure or back vacuum compensation to the flow detector.

Nishikawa et al. discloses that is known in the art to provide a backpressure or back vacuum compensation to the flow detector for the purpose of obtaining accurate flow rate measurement.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided in the combination of Brown and Hinkle a back pressure or back vacuum compensation to the flow detector for the purpose of obtaining accurate flow rate measurement, as recognized by Nishikawa et al..

***Response to Arguments***

5. Applicant's arguments filed 03/20/06 have been fully considered but they are not persuasive. Applicant is arguing that combination of Brown with Hinkle would render each respective teaching inoperative and that they teach away from each respective teaching through such combining. In response it is noted that the combination would not render Hinkle inoperative since it is the teaching of Hinkle that is being applied to Brown and not vice-versa. Furthermore, in combining Brown and Hinkle, it is only the teaching from Hinkle regarding the placement (emphasis added) of the calibrating flow detector downstream of the mass flow controller that is applied to Brown. In Brown, the calibration volume is located upstream of the mass flow controller, in Hinkle it is disposed downstream thereof. The arrangement of Hinkle provides calibration of flow rate coming out of the mass flow controller where as in Brown the flow rate going into the mass flow controller is calibrated/verified. The Hinkle approach is more useful since it is the mass flow rate coming out of the mass flow controller that is delivered to the processing chamber. It is not at all clear how such a modification in Brown would render it inoperative. As for the argument on page 9 of the response that the applied references do not teach a vent line comprising a bypass loop, Fig. 3 in Brown clearly

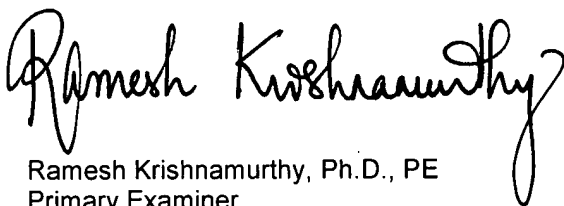
Art Unit: 3753

vent line to be fluidly connected to the bypass loop and as such the vent line comprises the bypass loop.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramesh Krishnamurthy whose telephone number is (571) 272 – 4914. The examiner can normally be reached on Monday - Friday from 10:00 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel, can be reached on (571) 272 – 4929. The fax phone number for the organization where this application or proceeding is assigned is (571) 273 – 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, reading "Ramesh Krishnamurthy". The signature is fluid and cursive, with the first letter of each name being capitalized and prominent.

Ramesh Krishnamurthy, Ph.D., PE  
Primary Examiner  
Art Unit 3753